AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (previously presented): A method for engineering traffic between an ingress router and an egress router of a packet network, the method comprising:

scheduling traffic within an ingress router in queues pertaining to different service classes;

determining a part of the traffic which will follow a dedicated tunnel between said ingress router and an egress router;

provisioning a tunnel queue dedicated to said part of the traffic intended to flow via said dedicated tunnel, for separately and temporarily storing said part of the traffic towards said dedicated tunnel; and

shaping said part of the traffic towards said dedicated tunnel before transmitting said part of the traffic in said tunnel.

2. (currently amended): The method according to claim 1, further comprising ~~wherein~~:

providing a set of tunnel queues ~~is provisioned~~, associated to said dedicated traffic tunnel, each tunnel queue within said set pertaining to a different service ~~class.~~ class.

3. (currently amended): The method according to claim 2, further comprising ~~wherein~~:

providing a separate shaper ~~is provided~~ to each tunnel queue of said set for shaping the traffic from said each tunnel queue of said set.

4. (currently amended): The method according to claim 2, further comprising ~~wherein~~:

associating said set of tunnel queues ~~is associated~~ to a plurality of dedicated traffic tunnels pertaining to the same egress interface of said ingress router.

5. (currently amended): The method according to claim 1, further comprising:

monitoring the traffic via said dedicated tunnel,

comparing ~~the~~ a result of said monitoring with a reserved bandwidth for said dedicated tunnel, and,

depending upon the result of said comparison, informing a network administrator of information regarding the result of said comparing by sending a message to said network administrator.

6. (previously presented): The method according to claim 4, further comprising:

monitoring the traffic via said plurality of dedicated tunnels at said egress interface;

comparing the result of said monitoring with a reserved bandwidth for said plurality of dedicated tunnels; and

depending upon the result of said comparing, informing a network administrator of information regarding the result of said comparing by sending a message to said network administrator.

7. (currently amended): The method according to claim 5, further comprising ~~wherein~~:

upon receipt of [[a]] the message indicating that the traffic through said dedicated tunnel exceeds a predetermined value, increasing by said network administrator ~~increases~~ the reserved bandwidth, including calculating ~~whereas~~ a new path or paths ~~are calculated~~ for said dedicated tunnel[[,]] between said ingress router and said egress router.

8. (currently amended): The method according to Claim 1, wherein:

[[said]] provisioning said tunnel queue is dependent upon [[the]] sending, by said network administrator, of a message enabling provisioning ~~said method~~.

9. (currently amended): An ingress router of a packet network, comprising:

a classifier which determines a service class for each received packet to be stored in a service class queue based on the determined service class;

a look-up device which identifies a part of the received packets as special packets which are to be transferred from the ingress router to an egress router in a dedicated tunnel, separately from a remainder of the received packets;

at least one tunnel queue dedicated and associated to said ~~at least one~~ dedicated tunnel~~,~~ ~~said at least one tunnel queue~~ to temporarily ~~storing~~ store the identified part of the received ~~incoming~~ packets; and

at least one tunnel shaper, associated to said ~~at least one~~ dedicated tunnel~~, wherein the~~, which tunnel shaper shapes the ~~traffic~~ identified part of the received packets of said ~~at least one~~ dedicated tunnel before transmitting.

10. (currently amended): The ingress router according to claim 9, further comprising:

at least one set of tunnel queues, pertaining to different service classes, and associated to said ~~at least one~~ dedicated tunnel.

11. (currently amended): The ingress router according to claim 10, further comprising:

at least one set of tunnel shapers associated to said ~~at least one~~ dedicated tunnel.

12. (currently amended): The ingress router according to claim 10, wherein:

said ~~at least one~~ set of tunnel queues pertaining to different service classes is associated to a plurality of dedicated tunnels pertaining to the same egress interface of said ingress router.

13. (currently amended): The ingress router according to claim 9, further comprising:

a monitoring device which monitors the traffic of said ~~at least one~~ dedicated tunnel, compares said traffic with a predetermined threshold related to a reserved bandwidth for said ~~at least one~~ dedicated tunnel, and generates a message to a network administrator depending on the result of said comparison.

14. (currently amended): The ingress router according to claim 9, wherein:

said ~~at least one~~ tunnel queue is enabled based on a determination as to whether or not to enable said ~~at least one~~ tunnel queue to receive packets intended for said ~~at least one~~ dedicated tunnel, said determination made from a predetermined message received from [[said]] a network administrator, said message related to [[the]] enabling of said ~~at least one~~ tunnel queue.

15. (new): A method, comprising:

reading identification information in each incoming packet at an ingress router which includes a first queue set and a second queue set, each queue in the first and second set is associated with a corresponding service class;

identifying a service class of the incoming packets based on the identification information;

classifying the incoming packets into one of standard packets or special packets based on the identification information, the special packets are to be transmitted in a dedicated ingress tunnel between the ingress router and an egress router;

prior to transmitting the packets, storing the packets in a queue of one of the first queue set if the packet is classified as the standard packet or the second queue set if the packet is classified as the special packet, based on the identified service class;

shaping the special packet stored in the queue of the second queue set;

transmitting the standard packets from the queues of the first queue set via an ingress general tunnel; and

transmitting the special packets from the queues of the second queue set via the dedicated ingress tunnel coupled to the second queue set.

16. (new): The method according to claim 15, further comprising:

prior to transmitting, determining an egress interface reference including an egress blade and an egress interface to which the packet is to be transmitted based on the identified service class of the packet and packet classification;

creating a special packet header which includes the identified service class and determined egress interface reference;

receiving each transmitted packet at the determined egress blade which includes interfaces each including at least one of a set of standard egress queues, which standard set is coupled to a general output tunnel, or a set of special egress queues which is coupled to an output dedicated data tunnel;

determining the egress interface and the egress queue based on the special packet header;

routing the standard packet into a corresponding standard egress queue based on the service class;

routing the special packet to a corresponding special egress queue based on the service class;

transmitting the standard packet from the standard egress queue via the output general tunnel; and

transmitting the special packet from the special egress queue via the output special tunnel.

17. (new): The method according to claim 16, wherein the output general tunnel includes an internet protocol (IP) tunnel and the output dedicated tunnel includes a multi-protocol label switching (MLPS) tunnel.

18. (new): The method according to claim 15, wherein the general ingress tunnel includes an internet protocol (IP) tunnel and the dedicated ingress tunnel includes a multi-protocol label switching (MLPS) tunnel.

19. (new): The method according to claim 1, wherein the dedicated tunnel includes a multi-protocol label switching (MLPS) tunnel.

20. (new): The router according to claim 9, wherein the dedicated tunnel includes a multi-protocol label switching (MLPS) tunnel.